Amendments to the Claims:

Claims 1-252 (canceled).

Claim 253 (currently amended): A radio frequency communications device comprising an ~~a single~~ integrated circuit including a transmitter and a receiver, the integrated circuit being configured to periodically check if a radio frequency signal is being received by the receiver, the integrated circuit further including a timer configured to set a programmable time period for the checking, the timer being programmable by RF command from a remote interrogator to a user selectable value, the transmitter being configured to use a clock signal having a frequency recovered from the received signal, the integrated circuit being configured to switch between a sleep mode, having a first power level, ~~and~~ a receiver-on mode, having a second power level greater than the first power level, and a third mode, having a third power level greater than the second power level.

Claim 254 (previously presented): A device in accordance with claim 253, the timer further including a frequency locked loop having an output and a variable value divider having an input coupled to the output of the frequency locked loop, the value of the divider being programmable in response to a radio frequency command received by the receiver and containing data representing a desired divisor value for the divider, to permit remote programming of the time period of the checking.

Claim 255 (previously presented): A device in accordance with claim 253 and further comprising:

a frequency lock loop in the timer, the frequency lock loop including a current controlled oscillator coupled to the receiver and being configured to recover the clock frequency from the received signal; and

a selectively engageable countdown timer configured to prevent switching from the sleep mode to the receiver-on mode for a predetermined amount of time set by a radio frequency command, received by the receiver, containing data representing the desired amount of time.

Claim 256 (previously presented): A device in accordance with claim 254 wherein the device is configured to receive and process commands from an interrogator transmitting a radio frequency signal and to enable the frequency lock loop only during processing of a command, to calibrate the timer to a clock frequency recovered from a received command.

Claim 257 (previously presented):A radio frequency identification device including a single integrated circuit having a microprocessor, a transmitter, a receiver, and circuitry configured to switch, at times, from a sleep mode to a receiver-on mode and to perform tests to determine whether to further switch to a microprocessor-on mode, in which more power is consumed than in the receiver-on mode, because a valid radio frequency signal is present, the circuitry being configured to count transitions in the received signal to determine when the number of transitions within a predetermined time period fall within a predetermined range and then to determine when chip lock has occurred and then, when chip lock has occurred, to determine when frequency lock has occurred and then switch to a microprocessor-on mode, the circuitry being further configured to return to the sleep mode when counting transitions in the received signal determines that the number of transitions within a predetermined time period does not fall within the predetermined range, to return to the sleep mode when chip lock has not occurred in another predetermined time period, to return to the sleep mode when frequency lock has not occurred in yet another predetermined time period and to selectively disable the switching from the sleep mode for a predetermined amount of time in response to a radio frequency command, wherein the selective disabling cannot be cancelled by a subsequent radio frequency command, the selective disabling comprising setting a countdown timer, the length of the predetermined amount of time being a variable amount and being selectable from a number of predetermined selectable amounts of time in response to a radio frequency command.

Claim 258 (previously presented): A method of operating a radio frequency identification device comprising:

asserting a receiver wake-up signal after a timer interval has elapsed, the timer interval being programmable by RF command from a remote interrogator to a user selectable value;

asserting a bias control signal in response to the receiver wake-up signal to turn on a master receiver bias to provide electrical power to a radio receiver;

determining if a radio frequency signal is being received by the radio receiver;

determining when a first number of spread spectrum transitions of the radio frequency signal fall within a predetermined first range of numbers and occur during a first predetermined interval;

determining when a second number of spread spectrum transitions of the radio frequency signal fall within a predetermined second range of numbers and occur during a second predetermined interval; and

providing a microprocessor wake-up signal to a microprocessor when the first number of transitions occurs during the first predetermined interval and the second number of transitions occurs during the second predetermined interval.

Claim 259 (previously presented): A method as claimed in claim 258 further comprising, in response to asserting a bias control signal:

testing to verify presence of the master receiver bias; and

repeating asserting the bias control signal when the testing determines that the master receiver bias is not present.

Claim 260 (previously presented): A method as claimed in claim 258 wherein the radio frequency identification device includes a wake-up controller circuit and wherein determining when a predetermined time interval has elapsed is performed by the wake-up controller circuit, the method further comprising:

returning the radio receiver to the sleep mode when determining when a radio frequency signal is being received by the radio receiver determines that the radio frequency signal is not present;

returning the radio receiver circuit to the sleep mode when determining when a first number of spread spectrum transitions of the radio frequency signal falls within the predetermined first range of numbers determines that the first number of transitions within the predetermined first range of numbers does not occur during the first predetermined interval;

returning the radio receiver circuit to the sleep mode when determining when a second number of spread spectrum transitions of the radio frequency signal falls within a predetermined second range of numbers determines that the second number of transitions does not occur during the second predetermined interval; and

wherein returning the radio receiver to the sleep mode comprises:

turning off the master receiver bias; and

restarting a timer in the wake-up controller.

Claim 261 (previously presented): A method as claimed in claim 260, further comprising:

receiving by the receiver and decoding by the microprocessor a wake-up timer interval reset signal for setting a new wake-up interval in a wake-up interval timer in the wake-up controller; and

resetting the wake-up interval in the wake-up timer in response to the wake-up timer interval reset signal.

Claim 262 (previously presented): A method as claimed in claim 258, wherein asserting a bias control signal comprises turning on a bias control signal to turn on a master receiver bias to provide electrical power to a clock and data recovery circuit and a voltage controlled oscillator, the method further comprising, prior to providing a microprocessor wake-up signal and after determining when a second number of spread spectrum transitions of the radio frequency signal occurs during the second predetermined interval:

determining, during an interval of predetermined length, presence or absence of clock signal acquisition from the radio frequency signal by the clock and data recovery circuit, and, when absence of clock signal acquisition is determined, returning the radio receiver circuit to the sleep mode; and

determining, during an interval of predetermined length, when the voltage controlled oscillator and clock and data recovery circuit have acquired frequency lock, and, when absence of frequency lock is determined, returning the radio receiver to the sleep mode.

Claim 263 (previously presented): A method of operating a radio frequency identification device comprising:

determining, in a wake-up controller circuit, that a timer interval has elapsed, while the radio frequency identification device is in a sleep mode;

asserting, when the predetermined interval has elapsed, a receiver wake-up signal to set the radio frequency identification device to a receiver-on mode;

determining, when testing determines that the master receiver bias is present, when a radio frequency signal is being received by the radio receiver;

enabling a master receiver bias when the radio frequency signal is present to set the radio frequency identification device to a test mode requiring a third power level greater than the second power level, the master receiver bias providing electrical power to a radio receiver, a clock and data recovery circuit and a voltage controlled oscillator;

initiating the voltage controlled oscillator to oscillate at a first frequency;

determining, by the wake-up controller, when a first number of spread spectrum transitions of the radio frequency signal occurs during a first predetermined interval;

determining, by the wake-up controller, when a second number of spread spectrum transitions of the radio frequency signal occurs during a second predetermined interval;

determining, during an interval of predetermined length, presence or absence of voltage controlled oscillator signal acquisition from the radio frequency signal by the clock and data recovery circuit; and

asserting a microprocessor wake-up signal from the wake-up controller to a microprocessor when the first number of transitions occurs during the first predetermined interval and the second number of transitions occurs during the second predetermined interval, the microprocessor wake-up signal setting the radio frequency identification device to a processor-on mode requiring a fourth power level that is greater than the third power level.

Claim 264 (previously presented): A method in accordance with claim 263 further comprising:

returning the radio receiver to the sleep mode when the radio frequency signal is not present;

returning the radio receiver circuit to the sleep mode when the first number of transitions does not occur during the first predetermined interval;

returning the radio receiver circuit to the sleep mode when the second number of transitions does not occur during the second predetermined interval; and

returning the radio receiver to the sleep mode when absence of clock signal acquisition is determined.

Claim 265 (previously presented): A method in accordance with claim 263, further comprising, prior to providing a microprocessor wake-up signal, determining, during a frequency lock interval of predetermined length, when the voltage controlled oscillator and clock and data recovery circuit have acquired frequency lock, and, when absence of frequency lock is determined, returning the radio receiver to the sleep mode.

Claim 266 (previously presented): A radio frequency identification device comprising:

a radio receiver having an output;

a wake-up timer circuit configured to provide a receiver wake-up signal to the radio receiver at predetermined intervals to change a state of the radio frequency identification device from a sleep mode to a second mode;

a radio frequency signal detection circuit having an input coupled to the radio receiver output, the radio frequency signal detection circuit being configured to set the radio frequency detection device to a third mode when a radio frequency circuit is detected;

a wake-up controller circuit having an input coupled to the radio receiver output, the wake-up controller circuit being configured to test the radio frequency signal to determine when a first number of spread spectrum transitions of the radio frequency signal occurs during a first predetermined interval, then test the radio frequency signal to determine when a second number of spread spectrum transitions of the radio frequency signal occurs during a second predetermined interval;

a clock and data recovery circuit including a phase-locked loop, the clock and data recovery circuit having an input coupled to the radio receiver output, the clock and data

recovery circuit being configured to determine, during an interval of predetermined length, presence or absence of voltage controlled oscillator signal acquisition from the radio frequency signal; and

a microprocessor having a data input coupled to the radio receiver output and a control input coupled to the wake-up controller circuit, the wake-up controller circuit being configured to provide a microprocessor wake-up signal to the microprocessor in response to the first number of transitions occurring during the first predetermined interval, the second number of transitions occurring during the second predetermined interval and the wake-up controller circuit determining presence of voltage controlled oscillator signal acquisition from the radio frequency signal, the microprocessor wake-up signal setting the radio frequency identification device to a processor-on mode.

Claim 267 (previously presented): A device in accordance with claim 266, wherein:

the radio frequency detection circuit is configured to provide an output signal returning the radio frequency identification device to the sleep mode when no radio frequency signal is detected;

the wake-up controller circuit is configured to provide an output signal returning the radio frequency identification device to the sleep mode when the wake-up controller circuit determines that the first number of transitions does not occur during the first predetermined interval;

the wake-up controller circuit is configured to provide an output signal returning the radio frequency identification device to the sleep mode when the wake-up controller circuit determines that the second number of transitions does not occur during the second predetermined interval; and

the clock and data recovery circuit is configured to provide a signal returning the radio receiver to the sleep mode in response to an absence of clock signal acquisition.

Claim 268 (previously presented): A radio frequency identification device comprising:

a radio receiver having an output and a control input;

a microprocessor having a data input coupled to the radio receiver output and having a control input;

a timer having an output coupled to the control input of the radio receiver, the timer being configured to provide an output signal to the radio receiver control input changing a state of the identification device from a first mode to a second mode by turning on the radio receiver in the identification device in response to a first criterion, the timer being programmable by RF command from a remote interrogator to a user selectable value; and

a wake-up controller circuit including an output coupled to the microprocessor control input, the wake-up controller circuit being configured to change the state of the identification device from the second mode to a third mode in response to a second criterion, the wake up controller circuit providing an output signal to the microprocessor control input changing the state of the identification device from the third mode to a fourth mode in response to a third criterion.

Claim 269 (previously presented): A device in accordance with claim 268, wherein:

in response to the second criterion not being met, the wake-up controller circuit changes the state from the second mode to the first mode; and

in response to the third criterion not being met, the wake-up controller circuit changes the state from the third mode to the first mode.

Claim 270 (previously presented): A device in accordance with claim 268 wherein the radio receiver includes a variable frequency oscillator, and wherein changing the state to the fourth mode includes providing a microprocessor wake-up signal in response to the variable frequency oscillator achieving frequency lock with a received RF signal.

Claim 271 (previously presented): A radio frequency communications device, comprising:

a transmitter;

a receiver;

a first circuit configured to check, from time to time, if a radio frequency signal is being received by the receiver;

a timer configured to set a time period for the checking, the timer having a frequency locked loop including a current controlled oscillator, the frequency locked loop being configured to recover a clock frequency from the received signal to provide a recovered clock signal in response to the first circuit determining that a signal is being received and to supply the recovered clock signal to the transmitter; and

a variable value divider coupled to the output of the frequency locked loop, the value of the divider being programmable to a user selectable value in response to a radio frequency command received by the receiver so as to program the time period of the checking.

Claim 272 (previously presented): A radio frequency communications device in accordance with claim 271 wherein the device is configured to receive and process commands from an interrogator transmitting a radio frequency signal and to enable the frequency locked loop only during processing of a command to calibrate the timer to a clock frequency recovered from a received command, the integrated circuit being configured to switch between a sleep mode, a receiver-on power mode in which more power is consumed than in the sleep mode and in which the checking takes place, and a microprocessor-on power mode in which more power is consumed than in the receiver-on power mode.

Claim 273 (previously presented): A method for conserving power in a radio frequency identification device including a microprocessor and receiver, the method comprising:

switching the single integrated circuit from a sleep mode to a receiver-on mode based on a timer interval that is programmable by RF command from a remote interrogator to a user selectable value and performing the following tests to determine whether to further switch to a microprocessor-on mode because a valid radio frequency signal is present:

(a) determining if any radio frequency signal is present and, if so, proceeding to step (b);

(b) determining if the radio frequency signal is modulated and has a predetermined number of transitions per a first predetermined period of time and, if so, proceeding to step (c); and

(c) determining if the modulated radio frequency signal has a predetermined number of transitions per a second predetermined period of time different from the first predetermined time, and, if so, switching from the receiver-on mode to the microprocessor-on mode.

Claim 274 (previously presented): A method in accordance with claim 273 wherein the radio frequency identification device further comprises a clock recovery circuit configured to recover a clock from the incoming radio frequency signals, the clock recovery circuit including a phase locked loop and wherein the tests further comprise:

determining whether frequency lock is achieved on the incoming radio frequency signal within a predetermined amount of time;

switching from the receiver-on mode to the microprocessor-on mode when the phase locked loop has achieved phase lock within the predetermined time; and

returning to the sleep mode when the phase locked loop has not achieved phase lock within the predetermined time in response to a determination in step (a) that no radio frequency signal is present, in response to a determination in step (b) that the signal does not have the predetermined number of transitions per the first predetermined period of time or in response to a determination in step (c) that the modulated radio frequency signal does not have the predetermined number of transitions per the second predetermined period of time.

Claim 275 (previously presented): A radio frequency communications device comprising an integrated circuit including a transmitter and a receiver, the integrated circuit being configured to periodically check if a radio frequency signal is being received by the receiver, the integrated circuit further including a timer configured to set a programmable time period for the checking, the timer being programmable by RF command from a remote interrogator to a user selectable value, the transmitter being configured to use a clock signal having a frequency recovered from the received signal, the integrated circuit being configured to switch between a sleep mode, a receiver-on power mode in which more power is consumed than in the sleep mode and in which the checking takes place, and a microprocessor-on power mode in which more power is consumed than in the receiver-on power mode.

Claim 276 (previously presented): A device in accordance with claim 275, the timer further including a frequency locked loop having an output and a variable value divider having an input coupled to the output of the frequency locked loop, the value of the divider being programmable in response to a radio frequency command received by the receiver and containing data representing a desired divisor value for the divider, to permit remote programming of the time period of the checking.

Claim 277 (previously presented): A device in accordance with claim 275 and further comprising:

a frequency lock loop in the timer, the frequency lock loop including a current controlled oscillator coupled to the receiver and being configured to recover the clock frequency from the received signal; and

a selectively engageable countdown timer configured to prevent switching from the sleep mode to the receiver-on mode for a predetermined amount of time set by a radio frequency command, received by the receiver, containing data representing the desired amount of time.

Claim 278 (previously presented): A device in accordance with claim 275 wherein the device is configured to receive and process commands from an interrogator transmitting a radio frequency signal and to enable the frequency lock loop only during processing of a command, to calibrate the timer to a clock frequency recovered from a received command.